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SAFETY FOR SEAMEN



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**SAFETY
FOR**

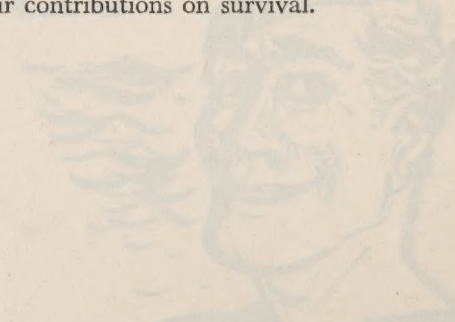
SEAMEN





ACKNOWLEDGEMENTS

The inspiration for this booklet came from contact with more than 2,000 seamen who have made use of the War Shipping Administration-United Seamen's Service Rest Centers. Licensed men in the deck, engine and steward's departments, union leaders, old-timers in shipping companies, doctors with service at sea and men of the merchant services of our Allies have contributed their experiences and ideas. We are also indebted to the Air Force of the Army and to the Navy for their contributions on survival.



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SAFETY FOR SEAMEN

The seafaring man, by choice as well as by tradition, is a rugged individualist. No other industry or profession demands a higher degree of ruggedness. No other has assumed the responsibility for its own individuals to a greater degree.

"Safety" has a very special meaning for the seaman. He faces more hazards than the average, even in peacetime. He has had to look out for himself in home ports, sea lanes and foreign countries.

THE RECORD SHOWS THAT THE SEAMAN HAS HAD MORE ACCIDENTS AND A HIGHER RATE OF CERTAIN DISEASES THAN MEN IN MOST INDUSTRIES. THIS IS NOT NECESSARY AND NEED NOT CONTINUE.

Part of the responsibility lies with others, but to some degree it remains with each man. Improved conditions are essential but not enough. Safety and health also depend on what each man knows and how he acts.

The best possible safety devices will be worthless if you don't know how and when to use them. You

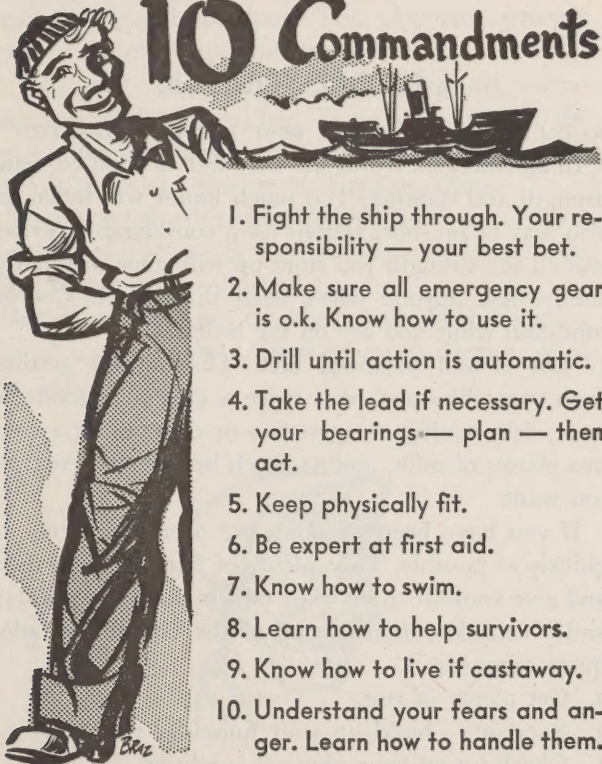
may know all about diet but it's what you eat that counts. You won't keep well unless you learn how to prevent disease. If you should get sick, the finest medical care ashore can't help you unless you seek treatment and follow the doctor's advice.

The success of the War of Transportation depends on a small force. The responsibility of each of you to continue to give your best is correspondingly great.

It is not necessary to go over the side in order to feel the strain of war. "Convoy fatigue," nervousness, anxiety, inability to sleep, and loss of appetite may occur when men have lived with the probability of attack or have not had enough rest between hazardous voyages. You can learn how to lessen the effect of strain and increase your ability to take it. Men sailing the seven seas are facing the same problems as you are — and solving them.

This booklet aims to tell you how. The rules are simple — but you have to know them all. You never know which of them you will need. We print them below as your Ten Commandments. The details make up the book.

Merchant Marine 10 Commandments



1. Fight the ship through. Your responsibility — your best bet.
2. Make sure all emergency gear is o.k. Know how to use it.
3. Drill until action is automatic.
4. Take the lead if necessary. Get your bearings — plan — then act.
5. Keep physically fit.
6. Be expert at first aid.
7. Know how to swim.
8. Learn how to help survivors.
9. Know how to live if castaway.
10. Understand your fears and anger. Learn how to handle them.

I. BEFORE YOU SAIL

GO ON THE SHIP IN THE BEST POSSIBLE HEALTH.

In an emergency your life may well depend on your strength and stamina. Too much liquor will lessen it. You may be on short rations for a considerable period and all the strength you store up will come in mighty handy. Ask anyone who's been through it. Get in condition while you are on the beach.

1. Eat a well balanced diet. That means getting fresh vegetables and fruit twice a day, such foods as meat, fish, poultry or eggs, two or three times a day, two glasses of milk, and as much bread and cereal as you want.

If you have been drinking get over the effects as quickly as possible. Take plenty of fluids, a good diet, and give yourself three yeast tablets three times a day and a capsule containing all of the vitamins in adequate amounts.

2. Get plenty of rest.
3. Exercise — build up your muscular strength.
4. Check up on your physical condition.

5. Get yourself immunized against contagious diseases — yellow fever, cholera, typhus, typhoid-paratyphoid fever, and smallpox. You can save yourself weeks or months of possible severe illness.

6. Take every opportunity to learn first aid, swimming and small boat sailing. These are taught at the Rest Centers and classes can also be arranged through the Port Medical Office at the large sea-ports.

7. If you are over-tired or jittery after a trip, spend a week or two at one of the Rest Centers. It will help to get you in good condition.

Get information at any office of the War Shipping Administration or the United Seamen's Service, or at your union hall.



II. ON THE SHIP

TAKE CARE OF YOURSELF

Eat as well-balanced meals as you can get. Drink plenty of water.

If you don't feel well report to the pharmacist's mate or to the officer in charge of the crew's health. Tell him if you are nervous or not sleeping.

SAFETY

Knowledge may save your life. It is the best life preserver you can have and one that you can't lose. It gives you confidence and diminishes fear and anxiety. It is a sign of courage and intelligence to face possibilities and then to figure out what you will do and how you will do it, if they should happen. It's the know how that's all important.

It is natural to be afraid when in danger or when you expect trouble. Remember that the other fellow feels the same way whether he shows it or not. Once you realize your fear you can usually manage it. It often helps to talk it over with the other fellow. If

you try to put up a bluff, to yourself especially, you are so preoccupied with covering your fear that you can't think sensibly of what you should do in the emergency.

When men are worried or nervous they are often restless and they are apt to blow their top more than usual. This is natural. It is healthier than keeping feelings inside and then becoming depressed or morose. If you begin to feel that way throw yourself into your job or get a game going and play it hard. If you have a quarrel with a man, put on gloves and slug it out with a referee and rules.

Recreation and relaxation on board ship are important. Divert yourself when not working. Play poker or any other game. Make bets on the day's run. Boxing, wrestling or any sport that will help blow off steam, is a great help.

Officers can organize teams for competitive sports on their own ship and with other ships when in port. Rowing races and other sports will get you in better condition for sailing.

The more your ship's company act together in work and in play the better the spirit and the more reliable and effective each man is. That makes a happy ship and a safer ship.



SAFETY MEETINGS

The more information you have in common, the more confidence you will have in each other and the better you will act together if in danger.

Discussions accomplish this. They are particularly important when inexperienced men are aboard but every man can profit from them. The officers and crew may be divided into two off-watch groups. The officers might lead an informal discussion of all the details of damage control, use of equipment, action in emergency, and behavior in lifeboats. The importance of each man and the value of what he does should be emphasized.

One captain held such discussions at each drill. He and the men discussed such questions as when and how to lower the boats under various conditions, getting a full boat if possible, staying fairly near the ship unless there is an explosion, more effective handling of the boat if it is full instead of half empty, etc.

This book can be used as the basis for the meetings. Be sure that each man has a copy. "Wartime Safety Measures for Merchant Seamen," U. S. Coast Guard Series No. 2, will add more detailed information on some of the points discussed.

If the talk about abandoning ship makes you uneasy, remember that lives are saved by knowledge and lost by ignorance. Information and team work, rather than danger, is the point of the discussion.

EACH MAN'S RESPONSIBILITY

When in the danger zone always sleep with your clothes on. Don't sleep on the hatch or sit around on it. Wear long UNDERWEAR that fits loosely. If working in the engine room have it near even in the tropics, as it can be wet and cold at night in a lifeboat.

Fasten to your life jacket or suit a JACK KNIFE with a lanyard attached to a shackle, a WHISTLE,

and a LIFE LIGHT. While you are on shore, if possible get a pair of warm long socks, a sweater, long underwear, tobacco or cigarettes if they are necessary to you. Put them in a waterproof bag with a lanyard or wrap them in oil cloth. Small packages of hard fruit candy can come in mighty handy.

A pair of leather GLOVES always kept in a pocket will save the hands from severe damage if you have to go down a rope or tear away hot debris. A HAT may be a life saving precaution against the sun and a pair of dark SUN GLASSES can be invaluable.

If you sleep without your shoes, practice putting them and the life jacket on and getting the waterproof package in the dark until you can do it quickly without fumbling.



KNOW THE WHISTLE SIGNALS.

1. Boat stations — 6 short and 1 long blast
2. Lower — 1 short blast
3. Stop lowering — 2 short blasts
4. Dismiss from boats — 3 short blasts

KNOW WHERE YOU ARE. If the captain will post the position of the ship each day, get into the habit of memorizing it and noting the prevailing winds and currents. The U. S. Hydrographic charts are in every life boat.

Work out the course you would set if the ship were lost. On one ship, the captain noted the ship's position at noon each day on pieces of paper and carefully put one in each life boat and raft.

IN ACTION. Figure out beforehand what might happen in any place that you might be in on the ship and figure out what you would be able to do under any of these circumstances. Such brainwork adds greatly to your feeling of self-confidence before a disaster and may save your life during one. You will remember your plan when you need it.

Wear clothes covering the body, as even thin material protects from flash burns. If the ship is being abandoned, put on all of the clothes that you can.

Lie flat on the deck pressed hard against a ledge

if duties permit when bomb hits are expected. Standing with your head against something solid is the next best. Heavy clothing reduces the shock of a blast.

Keep your head and see that others do. If there is no one in authority around to give orders, size up the situation quickly, take thought, and make decisions for yourself and any others who are not behaving sensibly.

Don't dash headlong for a lifeboat. Make yourself stop for 15 seconds to see whether you have the necessities. Take stock of your situation. This is the best antidote to panic.

LIFEBOATS*

The first thing that you demand of a lifeboat is that it keep you afloat; the second, that it take you somewhere. For if no rescue ship shows up, you may be in a bad way if you can't do anything but drift.

Every seaman should know how to manage a motor, sail and row boat. A lifeboat, no matter how seaworthy (and be sure that it is), isn't much good if no one can handle it properly. (See p. 23.)

*Statements concerning required equipment are taken from the Regulations as given in the "Wartime Safety Measures for Merchant Marine," published by the U. S. Coast Guard.

UPKEEP

Of course, the upkeep of equipment is largely the responsibility of the ship's officers, but they have a lot on their minds under present conditions. Where the interests of so many — the very lives of so many — are concerned, a few extra eyes to check important details is a real contribution to the general security.

A SAIL OR A MOTOR MUST BE GIVEN ATTENTION PERIODICALLY IF IT IS TO GET YOU PLACES. THE OARS SHOULD BE SEEN TO. If you pay no attention to them until that big moment when they become your principal means of locomotion, you'll be astonished and disappointed at the way they can let you down. Oars should be lashed to rafts so that they can be gotten at in whatever position the raft may float.

Round off the edges of thwarts in the life boat and smooth off any jagged corners of bolts, rivets, etc. It may be your home for some time so you might as well make it as comfortable as possible.

Sails and blankets should be aired regularly so that they will not rot. Wooden masts should be rubbed with oil so that they won't dry out. Stays, halyards, and mainsheet should be replaced when they begin to fray, and turnbuckles should be kept greased so they'll

turn freely. ALL TACKLE MUST BE KEPT IN PLACE. Put things back after every drill. Something mislaid may be as bad as something lost.

Keep the PAINTER made fast well forward so that the boat when water-borne rides to the painter and not to the boat fall. The toggles should be well tapered for the quick release of the sea painter, and it and the mousing hooks painted white or luminous.

After any action the lifeboats and rafts should be gone over for any damage. For damage after launching, REPAIR KITS are provided in each boat and every man should know how to use them. See that the bag of 25 BULLET HOLE PLUGS is properly secured so that it won't float away. A BUCKET OF SAND near the lifeboats will come in handy if oil is thrown up by explosives.

BOAT COVERS are necessary on tankers, but on dry cargo vessels, unless there is snow and ice, they should be stowed in the boat.

Wet the inside landing edges of boat planks every day in hot weather by playing the hose around the inside of the gunnel on the side benching. Drain away the water and replace the plug. There should be two plugs.

EQUIPMENT IN THE LIFEBOAT

Each contains a liquid compass, (the liquid is a poison), four day time distress signals and one or two distress lights, 3 drinking cups, a first aid kit, and a ditty bag with sailmaker's palm needles, twine, marline and marlinspike.

A SEA-ANCHOR is required in each lifeboat. (See p. 40.)

See that there is a gallon of VEGETABLE OR ANIMAL OIL aboard. The container should be so arranged that it can be attached to the sea-anchor. Be sure to remember to use it when sailing the boat in a heavy sea.

WIRE STRETCHERS are recommended to lower injured persons into a lifeboat.

SIGNALLING MIRRORS are required to be in every lifeboat and raft. Flashes from them can be seen as far as 10 miles on a clear day. Continuous rapid flashes can be seen in a plane flying too high to see the lifeboat or raft. (See p. 52.)

One PORTABLE RADIO is required to be available and readily accessible for use in lifeboats or a radio installation in at least one lifeboat on each side of the ship.

Keep the FLASHLIGHT in a place which every-

one knows so that it can be found at night. It will help locate men in the water.

Two EXTRA LIFE PRESERVERS are in each lifeboat. A manila line should be attached to be used as a heaving line to throw the life preserver to men struggling in the water.

See that all deck equipment is lashed securely so that it will not get in the way if the ship is struck.

Be sure that everything is securely lashed in the lifeboat. Also, every member of the crew should know how to release the lifeboat. The releasing gear should be painted white or luminous.

PROVISIONS. It is the officers' duty to check the water and other provisions at each boat drill, particularly to be sure that the water containers are full. The water should be changed every two weeks. See that the bungs are securely fastened with leather or canvas strap.

Since water is more important than food, as much water as possible should be taken along. Oil drums can be cleaned and sterilized by steam in the engine room and half filled with drinking water. They should be painted white, provided with rings or lashing and stored on the upper deck so that they can be rolled off and later lashed to the boat or raft.

If there is time, get a sack of potatoes, onions or turnips. They contain water and necessary food elements. In lifeboats with floors, condensed milk, canned tomatoes and fruit juices can be stored under the floor and are of great value.

NEW EQUIPMENT to increase safety has been developed and new ideas are being tested. This includes exposure suits, protection against sun, devices to take the salt out of sea water, rations that will best maintain strength and improved signalling devices. The value of any gear depends on the knowledge and coolness of the men using it.

DRILL

Drill until every action is automatic and the purpose and use of safety equipment is thoroughly understood. Drill must be held not less than once in four days. The best equipment is worthless unless you know how to use it quickly and accurately.

Every man should be told patiently and in detail just what is expected of him. This should be repeated until he can do it speedily and without having to think about it or get in another man's way. Nothing increases the confidence of men more than the efficiency of drills and of the officers who conduct them.

In addition, every man should know every job

that has to be done in lifeboat or on a raft. His life may depend on it. The other men may be helpless or he may be alone.



III. LEAVING THE SHIP

LAUNCHING THE LIFEBOAT

Launching a boat in any kind of a seaway requires just as slick timing as landing a plane. But when you lower the lifeboat for the first time there won't be any dual control. If you do the wrong thing, you and your shipmates may pay with your lives.

So many have been lost because somebody dropped the falls before the ship had slowed sufficiently, or let one fall go entirely, or got the fall snarled. Result: ten to twenty men scratched off the survivor list before they had even started for home.

LEARN HOW TO WORK THE DAVITS at the first drill. There are several types and they may be unfamiliar to you. Watch what each man does. Remember that he may not be there when you abandon ship. *YOU* may have to do it — and in the dark.

TAKE YOUR TIME. That's hard to do when you can see the ship going fast, perhaps threatening to capsize. But in 99 cases out of a 100 you've got more time than you think. Lives and boats have been

practically thrown away because the boats were lowered when the ship was moving ahead at too great a speed. A valve on the boat deck to stop the main engines is required. Know where it is.

A life saving cargo net is required for each set of davits. It should be rolled up on the outside and lashed so that it may be quickly released. You may have to embark that way. You may also find the nets handy to get back aboard.

LOWERING

In heavy weather it is often considered impossible to get the boats on the weather side away. However, there is another school of thought that considers that in heavy weather the weather boat is the one to lower, as the drift of the ship leaves a calm area. On the other side it is almost impossible to get clear.

There may be other conditions that will make them less hazardous than the lee boats — on a tanker, for example, with the sea aflame on the lee side. Or if there is much wreckage afloat, you might be crushed between it and a rapidly drifting ship. But get your boat over, if it's at all possible. The more boats over, the greater the chance for all. And yours may be the only one.

Be sure to wait if you can until the way is off the ship before lowering.

Make sure that the plug is in.

If you're on the low side, or the ship is rolling heavily, get frapping lines around the falls or around the block that travels down with the boat. If you let her get away from you, she'll smash up against the side or hang there out of reach. Fenders — anything in the way of a cushion — held along the ship's side will lessen the damage if the boat swings against it.

As soon as the boat is water-borne steer it with rudder or oar to keep clear of falling objects such as wreckage, other boats and excited jumpers.

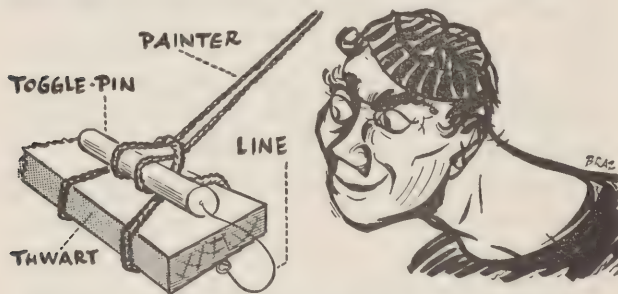
If there is any kind of a sea, don't use a rudder — use a steering oar.

THE SEA PAINTER

Launching a small boat under ideal conditions is one thing. Launching her when the ship has a way upon her and is listed and the sea is rough is another. Unless precautions are taken to prevent the sea painter from causing the boat to sheer and yaw after she is in the water, serious accidents may occur. The pull exerted on the sea painter by the vessel's forward motion must be directed to a point in the

lifeboat sufficiently forward to decrease the tendency to sheer.

Many masters fit a strop of manila near the stem which can be passed over the sea painter and the free end then passed under the thwart. Between the time the boat hits the water and the instant that it is decided to cast off, the strop will be pulled taut and the boat will be towed parallel with the vessel's side. The painter is held fast with a toggle pin.



When the officer in charge is ready to pull away, the strop can be quickly released and the end thrown free, the boat then sheers away when the strain comes directly on the sea painter at the point where it is fast to the forward thwart. This tendency to sheer can and should, of course, be regulated by the use of the rudder or steering oar.

These precautions should be understood by all officers and men and they should be drilled in their use. Unless this is done, a boat may capsize after she is apparently safe in the water.

The sea painter should be made fast at a point in its length with regard to the vessel's draft on each particular voyage so that when the boat is in the water and the sea painter is taking the strain, the boat fetches up abreast a lifesaving net.

Painters should be made fast at the rail so that they may be released even if under severe strain.

Do not unhook the forward fall if releasing gear is not fitted until the sea painter takes some strain. Otherwise the boat may be brought up with a severe jerk, knocking all hands off their feet.

Crews should be shown the method and operation of the strop and toggle and cautioned against releasing the boat if there is danger of the boat drifting back under the quarter and perhaps into the propeller, which may still be turning over.

The additional painter secured to the stern should be neatly coiled clear of the sea painter and available for use after clearing the ship's side. (See diagram, page 45 in "Wartime Safety Measures for Merchant Marine", U. S. Coast Guard.)

SUCTION

There is a legend that every vessel has a tremendous suction that draws everything down within a radius of a hundred yards, like some terrifying miniature maelstrom. This is definitely an exaggeration. It is true that if a ship is really sinking it's a good idea to get perhaps 30 feet from her. But there is more danger from too great hurry and panic in getting away than from suction.

We know of a case in which a ship sank under several men in seven minutes and not one of them was dragged under. Naturally, if you are near some large opening like a main hatch or a smoke pipe, the water will rush in, dragging everything afloat — including you — with it. But even so, unless you get trapped, you will float out before you drown, or may even be pushed out by the escaping air.

If you are some distance from hatches and funnels, the chances are that you can almost certainly *walk* off safely, if you have to stay that long to do your job right.

GETTING OFF ON YOUR OWN

If you cannot go over the side in a life boat, take a good look at the situation.

1. Have on a life jacket,

2. Get over the side on a cargo net, Jacob's ladder or line. Lower yourself rather than jump.

3. If there are none of these look for a fire hose. It offers a better grasp than a rope, but look out for the nozzle. Make sure that it has been belayed.

Gloves will keep you from cutting your hands, or slipping if the hose or rope is covered with oil. Always go hand over hand on hose or rope.

NEVER SLIDE. If there is a man above you and he slides, keep well braced and have your head to one side. Take his weight on your shoulders. Do not let go of the rope until your feet are in the water.

4. *JUMP AS A LAST RESORT ONLY* if there is no other means of leaving the ship. Go over the weather side near the bow or near the stern if the propeller is stopped and the stern is lower. If possible do not go over the lee side. If the ship is drifting fast you may be trapped against the side or by loose cargo in the water.

Look for a place to jump that is fairly free from oil and debris and nearer to a lifeboat, raft or other swimmers. If you have a life jacket keep your shoes on.

In jumping, cross the arms over the front of the life jacket. With one hand on your shoulder hold the

kapok jacket down so that it won't get over your head when you hit the water. Keep your legs together when you jump so that you won't hurt yourself severely. Hold your nose.

Jump as far out from the ship as possible.

If you wear a cork life jacket it is even more important to cross the arms and hold the jacket down firmly at the shoulders with the hands. Otherwise it can ride up when you hit the water, throw your head back and break your neck.

Get under way smartly on the course marked out in your mind so as to be out of the way of falling debris or explosives. Once out of these dangers, slow down and swim toward your goal. You have more chance to be seen and picked up in a group. Don't climb on a raft if there are a number of people on it — it may submerge. Hang on to it.

Flash your life jacket light on and off quickly so that at least some of the flashes occur when you are at the crest of a wave.

If you have no life jacket or suit any floating debris will help you stay up. You can sometimes get a better grip if you jab your jack-knife into the wood.

You can tread water, take off your pants or jacket, tie a knot in the legs or sleeves, button them up and

swing them through the air so that the arms and legs fill with air. Then twist the open ends so that the air stays in and you have a life preserver. Lie on your back and float.

Don't thrash about or swim uselessly. Slow relaxed strokes made with the arms moving like the oars of a boat when being rowed, and a slow kick help keep a man up if he has no life jacket. Every seaman should know how to swim.

If you see sharks make a commotion in the water to scare them and have your knife ready. Yelling alarms other survivors already wrought up and doesn't scare the shark.

If depth charges are going off around you, you may possibly avoid injury by lowering your life jacket to cover the small of your back and belly and as much of the chest as possible. Swim on your back, keeping as much of your body out of water as you can.

SAFETY FOR TANKERMEN

KNOW THE JOB. On tankers, barring a direct hit, panic is a greater danger than the enemy.

Since fire is the most serious hazard, have a bucket of water in all crew's quarters to wet clothes and towels to wrap around the head, face and hands in

escaping through flames. This could apply to all ships in danger zones.

If possible a tanker lifeboat should carry only half of its capacity as it is difficult to manoeuvre in oil slick. Every tankerman should know every boat job because some men may not reach their stations. Men in the steward's department and engine room should have special training in lifeboat handling. There should be at least four men to a boat if possible — fewer than that would find it difficult to handle.

The life lines fastened to the ship should be lowered before the falls are paid out so that they won't foul on the men in the boat and yank them over the side.

If the painter is not fire-proofed use 30 feet of wire with a manila tail leading into the boat.

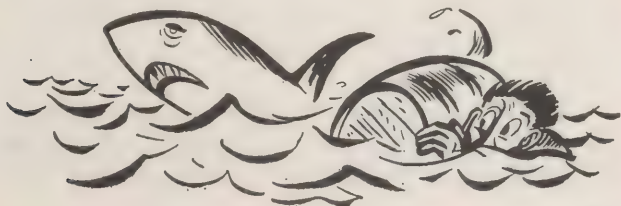
A steering oar is better than a rudder in getting away through oil slick. A navy type steering oar and lock or becket is best as the usual type would have to be lashed. Paint the blade white so that it can be picked out at night.

Life rafts are useless for tankers except under the most favorable conditions, as they cannot be controlled. If they are used, launch them as near as

possible to lifeboats so that a line can be passed from the raft to the boat.

Set the boat to windward as soon as possible and watch that the wind doesn't change.

SWIMMING IN OIL. If, as a last resort, you must go over the side into oil slick or flames, first take off your life preserver because you must swim underwater. Swimming in oil is like swimming through mud. Wait for a clear spot, gauge the distance, be sure that you are facing to windward, then jump feet first. Swim under water. On coming up for air through the oil, turn around so that your face is against the wind, pushing the water and oil away from you with short strokes. Breathe and submerge and swim again to windward. The Navy film MG-2063 "How to Swim through Burning Oil and through Surf" can be seen in the Rest Centers or borrowed for showing in union halls, U.S.S. recreation centers and hotels.



IV. IN THE LIFEBOAT OR RAFT

The first thing to do in a lifeboat is to take comfort in the thought that it is an exceptionally seaworthy craft. It is built to fight storms, but do not try to sail it in a gale.

If you're knocked off at night it may be best to wait for daylight to set your sail. Somebody is sure to get tangled in the halyards or forget to make the forestay fast in the dark, and you can't be sure what the weather prospects are. Unless the wind is fair for the direction you wish to take (a wind on or abaft the beam) it is worse than a waste of energy to hoist sail.

EXAMINE the equipment and supplies on board. The men on one raft did not find their signalling mirror until after the search plane had flown over them a few hours following the disaster. They stayed on that raft 34 days.

STOW the signalling equipment — mirror, sea dye, flares, and signalling pistol — where the man in charge of signalling can get at them in a hurry. You may

have only a few minutes before the plane disappears.

LASH everything on a raft to the hand line that runs around the outer edge. Rafts should not be lashed too closely together as it increases the tendency to upset.

GIVE FIRST AID. (See instructions on p. 62.) Remember that shock following cold and exposure or injuries may be delayed. Keep an eye out for symptoms and treat them as soon as possible.

PUMP or bail the boat out and keep it as dry as possible.

Get your emergency *RADIO* into operation.

DON'T ROW unless absolutely necessary. It is a useless waste of strength and energy. If there are two or more rafts connect them with a line. Rafts can be sailed.

SEAMANSHIP

The conditions under which you may have to abandon ship are so varied that it would take a book to cover detailed procedure covering all possibilities, and you don't want a book at a time like that. It'll be a lot better accident insurance to digest a few general principles.

Horse sense is what is needed. Some of the experts on the art of seamanship have surrounded the subject

with such an air of mystery that you would think that nobody could master it who has not acquired a crust of salt and barnacles over half a lifetime. True, a real seaman usually (but not always) has long experience, but you can learn enough to carry you through.

Seamanship is good sense more than anything else. It means estimating the effect of waves, of a list, of a bad roll. It means deciding how much strain a rope or an oar will take without snapping and realizing that if nine-tenths of a boat's crew get on one side she may capsize.



There is no reason why any intelligent man who not only *keeps* his head but *uses* it, should not be capable of displaying good seamanship. Take an engineer. His entire acquaintance with the boats may be confined to the drills. But being of a mechanical turn of mind, working with forces and pressures and strains should come easy to him.

As many of the crew as possible should know how to step the mast and set sail. Everybody should have a station — at the halyards or shrouds, handling the mainsheet, etc. Or he can be of use being 150 pounds



deadweight in a particular position where it will do the most good.

The distribution of weight in a small boat is very important in a seaway, especially under sail. For example, it is often difficult to tack without having part of the crew sally forward, so that she'll pivot around on her forefoot. And with the wind aft she's safer and will steer better when she's stern heavy.

Everybody should know a couple of jobs besides his own — the more the better — including how to shorten sail or tear it off in a hurry. As many as possible should know how to steer, especially with the wind aft, when there is danger of a jibe. Just one jibe might easily bring the history of your lifeboat to an abrupt end. Besides, the more a man is able to do for himself and the more value he is to the group, the more incentive and strength he has to hang on.

LEADERSHIP

If there is no licensed man or petty officer in the boat, the man most experienced in seamanship and in handling men should take charge. Two men with life boat tickets or otherwise experienced in small boat handling should be assigned to share responsibility.

ASSIGN EVERY MAN TO DUTIES ACCORDING TO HIS CAPACITIES, HOWEVER SMALL.

Every man needs a job. If none is assigned, find one. It keeps up courage and gives something to think about no matter how trivial and unimportant the responsibility would seem under ordinary conditions. There should be a definite routine.

IT IS UP TO THE MAN IN CHARGE TO ENFORCE DISCIPLINE, VIGOROUSLY IF NECESSARY.

Even should the men seem to resent it, if it is just and wise, it will be a great comfort to them.

LOCATE YOUR POSITION, LAY OUT A COURSE TO SOME DEFINITE OBJECTIVE AND STICK TO IT. (See p. 46.) To know where you are going and to be on your way brings courage and hope. The desire to live can keep you alive. Fortify the other men with this desire. In helping others keep alive, you help yourself too.

A CALM FRAME OF MIND IS CONTAGIOUS. It improves the chances of surviving to an extraordinary degree. Further, it actually can keep you in better physical condition. Hope is as important as food and water. It helps you to keep the few simple rules on which life depends and prevents destructive behavior.

START DISCUSSIONS, NO MATTER HOW TRIVIAL THE SUBJECTS. Find something to hash over to divert the mind.

Over and over again in this war a majority of men in one lifeboat would survive while those in another from the same ship and under identical conditions would die. The difference lay in their behavior. For survival, nothing can take the place of men who help to keep up spirits, who are fair in the division of supplies and who preserve a certain sense of discipline which keeps up self-respect.

As a rule, tolerance and patience with one's fellow victims makes life more endurable. But sometimes if the men seem hopeless, bullying helps. Anger can give men strength.

STUDY WEATHER SIGNS

It may be that you are on watch when a squall makes up. If you recognize it and act in time you may save the boat. Get the sail off in plenty of time. It is easier to put the sail back in calm weather than to take it off in heavy weather.

THE SEA ANCHOR

A sea anchor is worth its weight in gold. Every lifeboat is required to have one. It acts as a drag just as a parachute does but it lies horizontally in the water. It keeps the boat end on to the seas.

With a sea anchor at the bow a well-found life-

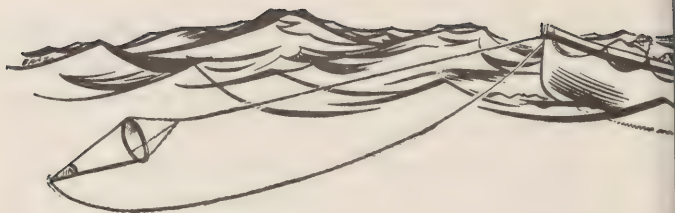
boat will ride out a whole gale. The seas may sweep her, but she stays right side up. But let her get broad-side to and a relatively small comber will roll her over like a cardboard box in the wind.

Any piece of canvas stretched so that it will catch in the water will do for a sea anchor in a pinch. You can use your sail and spars, but have them securely lashed. You're out of luck if they get away. If you haven't got anything better put a bucket over, on as long and heavy a line as you've got. Wrap the rope with canvas to prevent chafing over the gunnel.

On a well constructed sea anchor, the towing beackets should go completely around the anchor, with the sides of the canvas cone sewn to the ropes. It is essential to provide the anchor with a towing swivel at each end, otherwise it will kink up the towing rope so badly that it will become useless in a very short time.

The tripping line is made fast at the point of the cone, preferably to a strop sewn completely around the sea anchor.

Directly above the flat base of the oilcone, the canvas in the anchor should be doubled, and four to six #4 brass grommets set in to reduce the water pressure on the anchor.



USE OF SEA ANCHOR. When hove to the sea anchor is let out over the bow with sufficient rope to place it as near as possible in the far end of the sea trough when the boat is on the crest of the wave. Consequently a boat travelling with the moving wave crest and the sea anchor laying in slack water may even be drawn in the opposite direction. This would be due to the undertow of the next wave — but the anchor rope would tighten up and so keep the boat head to the sea.

Never pay the anchor rope out to the bitter end. Make the bitter end fast to the forward thwart. Always keep enough slack to allow for a round turn around the thwart and a couple of fathoms to spare. Then when the full force of the wave hits the boat the strain on the anchor rope is eased off. Otherwise, the anchor rope will break.

When the crest of the wave has been passed, and the boat is running downhill and the sea anchor is in the wash of the next wave, the anchor rope will slacken up and afford an opportunity to haul back in the slack just paid out. You are then ready for the next wave.

A sea anchor should not be used as a rule over the stern of the boat. At times, however, for some reason — like sailing before the wind — it may be found necessary to have some steadying agent besides the steering sweep or rudder out over the stern. The anchor may be towed point first by means of the tripping line thereby offering less resistance most of the time, and only turned to full pull when at the crest of a wave.

If, in a fair wind and following sea, it is desired to provide a sea-smoothing oil slick, the anchor can be towed point first all of the time.

USING THE OARS IN A GALE. If you haven't a sea anchor you'll have to keep her end on with the oars by keeping the blade held vertical. This is not easy but it may be necessary for continued existence. You may decide to keep her nose into the sea. It may be you'll have to because of the boat's design.

With the double-ender whaleboat type you'll probably find it easier to take the seas over the stern. With stern to sea and enough motion from the oars to give steerage-way, you have an ideal situation under the circumstances. Or at least as ideal a situation as one could have riding out a gale in mid-ocean in a life boat.

The boat will be taking the seas end on — or nearly so. She's moving, so they don't smack her so hard. But she's not moving fast enough to dive into a trough (and maybe pitch-pole) or teeter on the crest of a wave, completely out of control, like a drunken waiter's tray.

Always use a steering oar in heavy weather. It's hard work, but your rudder's liable to be hoisted clean out of water just when you need it, and there'll be many times when it won't give you the leverage you need. Keep her on an even keel or slightly stern-heavy.

If you're heading into a sea be sure that her bow isn't too light or it may be picked up by a sea and before you know it swung broadside to, which is a set-up for the next roller.

OIL ON SEAS that are breaking has an effect that is little short of miraculous, and it doesn't take

much. Your gallon or so may have to last a long while, so contrive some means of having it ooze out slowly.

It is useful to have a canvas bag filled with an absorbent material, such as oakum or waste, soaked in oil. Prepare this on the ship. Puncture the bag with a heavy sail needle before using. Make no more holes than necessary in order to save oil.

The important thing is to spread a blanket of oil over that area to windward through which breaking seas are sweeping at you. Conditions will determine where your bags should be put — maybe in the sea anchor — although if you're yawing badly it may not spread out enough.

It may be sufficient to drop a single bag over the windward end of the boat, or you may need three small ones — one to windward and one on either side. Watch how the slick forms and change the bags as necessary.

PLAN AHEAD

It is well for the senior man in the boat to be prepared for anything that might happen, however well he conceals it behind an air of confidence. His alertness and planning for emergencies gives him con-

fidence and courage. This is sensed by the men and heartens them.

Always assume that a squall will come up during the night and that the tiller or rudder will carry away — so have the steering oar ready. Assume that the boat will eventually capsize so see that everything possible is lashed.

In every way possible prepare for some underhanded move of Fate. It's better to make such preparations and be pleasantly surprised that you didn't need them than to be caught unaware by some relatively minor accident.

NAVIGATING

It is not practical to present a treatise on small boat navigation but a few suggestions may be useful. It is naturally helpful in navigating a boat in a large ocean to know where you're starting from. Even Columbus knew that. This is why you need to know the position of your ship each day. Don't take a chance even in apparently safe waters.

As soon as possible in the lifeboat, plot your position carefully on the charts. These are "Pilot Charts" of the oceans prepared by the Navy's Hydrographic Office. They give the figures on prevailing winds and currents in the various parts of the ocean, and other

valuable information. Keep them clean and dry.

The compass is your most precious possession. Be sure that it is lashed. Mount it accurately in a fore and aft line, in the center line if possible, where the helmsman can see the card.

Arrange for enough illumination at night so that he can see the lettering. Arrange the light, however, so that the compass will not be deflected by it. A large flashlight held close to the compass can pull your needle around till you can't tell east from west.

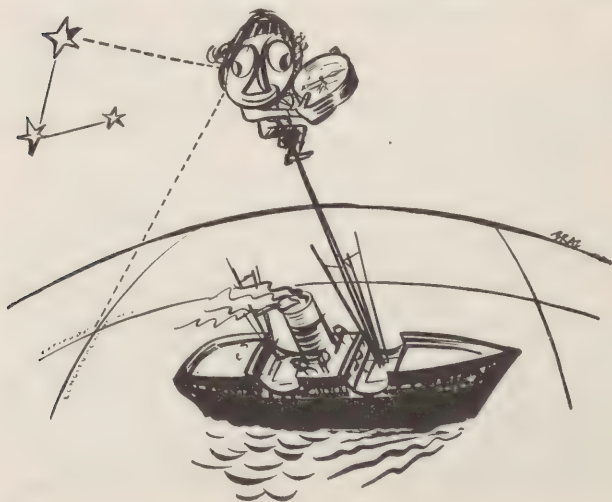
Always assume that your compass has a large error (and in a steel life boat you'll probably be right). Find out what the error is as soon as you can. Your best check is the North Star, always within a couple of degrees of true north.

Your second best — very much second best — is to use your watch as a sun-dial. There is a difference of opinion as to whether this is accurate enough to be worth much. But it's probably better than nothing. Hold it flat, with the hour hand pointing toward the sun. If the watch had been set pretty close to your local time — that is, your time according to the sun and not according to Eastern War Time or Greenwich Time or any other time — south will be halfway between the hour hand and 12 in the northern hemisphere,

and north will be between the hand and 12 in the southern hemisphere.

There are two causes of error in a compass, *variation* and *deviation*. The chart tells you what the variation in that locality is. The deviation, which is due to the iron in the boat, you will find out for yourself. Forget about it until you've set your course.

Having plotted your position on the chart, decide what you want to head for. On the chart is printed a compass — known as a “compass rose” — which will



probably point *true* north. Lay a match stick along the course you want to follow and lay another one parallel to it through the center of the nearest compass. That is the course to steer.

If it is a magnetic rose (pulled to right or left of the vertical line of the paper) you head your boat on that course. If the printed compass is up and down, you must apply the variation.

The variation is shown on the chart. Take the figure nearest to your position. Say your true course is due east or 90° , and the variation where you are is 20° west. Just remember the rhyme "Error west, compass best" and add the variation, which will make the course 110° . If it's 20° east, say to yourself "Error east, compass least" and subtract it from 90° , making the course to be steered 70° .



Now to find out what the deviation is, take a bearing of the North Star. It should bear within a couple of degrees of true north, or 0° . Say you find it bearing 30° . If the variation is 20° west, your deviation must be 10° west. Or if the star bears 10° it means that the westerly variation has been partly offset by a deviation of 10° east.

Remember this deviation and always figure on it as long as you're anywhere near that course. But if you make a considerable course change, check it again, because it'll probably be different.

The course you will decide to take will be based on the proximity of other vessels, of land, whether or not you have a sail, the present wind, and the direction of the prevailing winds and currents in that area as indicated on the chart. Whether you stay where the ship went down depends on all these factors.

There are two schools of thought here also. One advises staying put under all but the most favorable circumstances. Another assumes that you will not be picked up. They advise not to waste time heading for what you think might be a busy ship lane. Head for the beach, and pick out something big to steer for, like a continent — something you can't miss. Don't

waste time hunting for islands, unless they're a great deal closer than the continent.

Columbus found a continent with only a compass and not even a map.

ATTRACTING ATTENTION

Know exactly how to use your signals before you need them. They should be in the charge of a responsible man. Their number is limited, so use them only when they will be effective — not too soon. You can see an airplane or a ship long before it can see you. Wait until you are reasonably sure that your signal can be seen.

Lash a red flare to a boat hook and hold it as high as possible, so that it will be seen further. Hold it away from the sail. Keep your flares dry. If they get wet they are useless.

The Very pistol must be kept dry so that it won't rust. Save your cartridges until you see a plane and fire straight up so that it will go as high as possible.

Smoke signals should be thrown overboard to leeward.

A flash light shining on a sail increases the chance of the boat's being seen.

Churning the sea with oars increases your visibility to airplanes.

Yellow is the color seen furthest at sea. Use it for a flag.

Whistles blown together carry further than shouts and use less energy.

A mirror or bright piece of metal can send a reflection of the sun for ten miles and is seen by an airplane even when there is a mist on the water. An unbreakable mirror with a hole in the center for accurate flashing is part of the equipment.

DIRECTIONS FOR USING MIRROR

Hold the mirror about three inches away from your face and sight at the plane through the sighting hole.

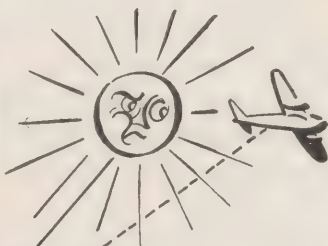
The light from the sun shining through the hole or cross will form a light spot on your face and this spot will be reflected in the rear surface of the mirror.

Then, still sighting on the plane through the hole, adjust the angle of the mirror until the reflection of the light spot on your face in the rear mirror just coincides with the hole.

In other words, when the reflected spot disappears and the plane is still visible through the hole you can be sure that the reflected light from the sun is accurately aimed at the plane. Practice on board ship.

BE SURE THAT YOU ACTUALLY SEE THE

SHIP OR PLANE. It is very common for men to imagine that they see them when none are actually there. Instruct the men to whisper word of anything seen to the man on watch. He should then ask the other men what they see. If one man says a plane and another a ship, you will know that it is imagination.



If you ask them *if* they see a ship they will almost always imagine that they do see it. But if you ask them *what* they see and they all say a ship and their descriptions are alike, it is probably there. This procedure will save many heart-breaking disappointments.

ONE LAST CAUTION

When you survive getting off the ship and the perils of the life boat, there is still one more precaution to take.

If you lose your head when the rescue ship comes alongside, you're lost. Deplorable loss of life and injury has occurred in the scramble to board the rescue ship.

Men who have reposed in safety in a boat for hours or days have rushed from it as if it were plague-ridden. Some only broke a leg, but some were crushed between the hulls of ship and boat. Once again — take it on the slow bell!

FOOD, DRINK AND HYGIENE

CONSERVE ENERGY. Unnecessary exertion causes the loss of both water and energy. Get the men settled down without delay. Sit or lie quietly at rest when not attending to duties. All should sit low in the boat except in the finest weather. In gales the men should sit on the bottom boards.

Exercise only enough to keep the kinks out of the joints so you can move in a hurry if need be. Otherwise move slowly and deliberately.

Don't shout. Occasional singing helps keep up the spirits.

WATER

A certain amount of water is necessary to maintain life. It does little good to try to stretch the supply by giving out small amounts for a longer period.

Unless you are close to land no water should be given for the first 24 hours. This saves water and the body does not need it. Then give 18 ounces to each person every 24 hours, six ounces three times a day. This amount is enough to keep a man healthy so that he should be able to live another ten days after the water is exhausted.

Get all the pleasure you can out of each mouthful.

Keep it in the mouth for some time, gargle with it and then swallow it.

Drink all the rain water you can hold. The body can store a certain amount of water. A quart of water in the body is worth two or three quarts in a can that might get upset.

In catching rain water use an extra piece of canvas for that purpose, as any exposed canvas will be soaked with salt. Oil cloth is still better. If you have none, dump the first water collected, which will be salty, and collect more.

Shirts, handkerchiefs or any cloth should be used to soak up the rain. Wring out and discard the first water collected to get rid of the salt. Then let soak in the rain and wring out in the bailing bucket and other containers.

An air tank from the stern can be used for collecting water but in heavy weather be careful of the balance when storing it. The tanks in the waist and forward are needed for buoyancy in heavy weather.

Fresh water may be obtained from melting ice from icebergs and from last year's field ice. This is bluish, has a glare, splinters easily with a knife and is barely salty. Fresh ice is salty, tough, greyish, has no glare and splinters less easily.

If the weather is freezing at night, sea water can be collected in a can. The salt collects in the center, forming a slush which is surrounded with ice, containing very little salt. This ice can then be melted when there is sun.

Chewing a piece of gum or cloth, or holding a button in the mouth, reduces thirst.

NEVER DRINK SALT WATER. It only makes you thirstier and may result in death.

METHODS OF CONSERVING WATER. This is as important in the tropics as a generous supply of drinking water. The body loses water by evaporation of sweat — as much as 1½ quarts a day in a calm on a raft in a tropical sea. This water can be lost from clothes instead of from the body in the following way:

1. Keep the clothing wet.
2. Rig an awning if possible so as to shade the body without cutting off the breeze.
3. Get the benefit of any breeze that is blowing.

The body should be cool enough to feel slightly uncomfortable but not chilly. In this way a man with no drinking water can keep himself in better physical condition than one with a quart of water a day who does not carry out any of these directions.

If the nights are cold, dry the clothes before night.

FOOD

Food is much less necessary than water, as long continued fasts show. A man in good physical condition can live 20 to 30 days without food.

If you have solid food but no water, you will survive longer if you do not eat at all. You will need considerably more water if you eat chocolate, pemmican, bully beef, or bouillion cubes. If you can stand it and there is little chance of being picked up soon, it is better not to eat anything for the first three or four days.

EXPOSURE TO SUN AND WEATHER

Keep the body, and particularly the head and the nape of the neck covered. Thin clothes are better than none — those that keep off all of the sun's rays are best to prevent sunstroke. If there is not protection for all give it to the redheads and the fair-skinned people who freckle easily. They can stand the least exposure.

You can burn in cloudy weather as well as in the sun.

You can cut off some of the sun's glare by tying a piece of cloth over your nose up to your eyes so that when you look straight forward you do not see the horizon.

Fuel oil and grease are no protection against sun and do more harm than good. Massage oil is useless.

Strip the clothing from those who die and distribute it.

In hot weather do any necessary work after sun-down.

CARE OF THE FEET

If your socks and shoes are wet, take them off if it is possible to dry them quickly. If not, leave them on as protection against sunburn as well as cold. If there is no way of keeping the feet dry and they begin to swell, keep the socks or shoes on. They will swell worse and be more painful without covering.

Rub the massage oil on feet, legs, and buttocks as soon as you can after getting on the boat but do not rub the feet if they swell or if sores appear.

BATHING

If the weather is warm go in swimming, but not more than once or twice a day. Be careful that there are no sharks, barracudas, bluefish, or stinging jellyfish around.

Go over the side slowly to keep the salt water out of your mouth. Don't dive. Remember that in the tropics you can get sunburned under water.

You can have another man make a line fast under

your armpits and holding one end of the rope, put you over the side for a moment and then haul you in.

If you have boils keep yourself as dry as possible.

SLEEP

Regular sleep helps prevent exhaustion and keeps up morale, but it is possible to live for long periods without it. Oars placed on the bottom boards forward make a platform for those off watch.

ELIMINATION

Because of the small amount of food, it is unlikely that there will be a bowel movement. This will do you no harm. Do not take a laxative.

You will pass less water than usual and it will be dark in color. This is natural because of the small liquid intake and is not harmful.

FISHING

The fishing kit is for emergency use. Guard it carefully. It may well save your life. If you have had enough to eat you can chew the fish for its water content and spit out the solid part.

If you see flying fish at night hoist your sail or hang up any white cloth and shine your flashlight on it. Flying fish will often jump at it and fall into the boat. Be economical with your flashlight.

Clean fish and eat it immediately, or dry it by cutting it in thin, narrow strips and hanging in the sun. If well dried it may keep for several days.

Do not fish where sharks are as they may cut your lines. Shark meat and liver are salty so don't eat it unless you have plenty of water. If you do harpoon a small shark or other fish, keep the line taut so that he won't roll over and sever it.

Almost all fish are good to eat. But if fishing near shore you may find three kinds that are poisonous — parrot fish with large teeth like a parrot's beak, porcupine fish, and puffer fish which swell up if you scratch them on the belly. They can be used for bait.

Sea snakes are poisonous and have scales. Eels have no scales and are good to eat.

Seaweed is good to eat but shake out the jelly fish and crabs. The crabs may be chewed for juice and the shells spat out.

Clean and dry your lines and hooks after using. Keep your lines clean. Don't fasten the lines to your finger or foot or to the boat but let two men hold them if possible, so as to give you a greater chance to land fish. Keep the line from rubbing against the gunnel and wearing out.

FIRST AID

EVERY LIFE BOAT AND RAFT IS REQUIRED TO HAVE A FIRST AID KIT.

EVERY SHIP ALSO CONTAINS 2 ABANDON SHIP KITS.

These should be stowed in separate locations easily accessible to the life boats. The master should instruct officers in charge of boats where they are. They should be gotten out and put in the boat at each drill otherwise they may be forgotten in the emergency and lives lost from shock, infection and burns, that might have been saved.

In addition to the kits, cigarettes, matches, aspirin and chewing gum may be added with great benefit.

Life in the boat or raft may cause a number of difficulties.

SALT WATER BOILS are common if you cannot keep dry. Do not squeeze or open them. If they are large and angry looking cover them with a coating of sulfanilamide powder. Otherwise let them dry in the sun for short periods.

SEASICKNESS can make you miserable. If it is severe and continues and the retching is exhausting, an injection of gr 1/4 morphine from the syrette will give relief.

SUNBURN. Keep the face, head and body covered if possible. The salve for burns or the eye ointment in the first aid kit will give relief. If blisters form don't open them. If they break dust them lightly with sulfanilamide powder, cover with gauze, and bandage lightly. If you have no sulfa powder, cover with a wet bandage or rag. Don't use massage oil.

INFLAMMATION OF THE EYES can come from sun glare, flash burns, or fuel oil. Clean the eyelids with a piece of cotton or cloth dipped in oil cleaning solution. Apply eye ointment from the tube in the kit. If the eyes are painful and blood shot, cover with eyepads so as to keep out the light. Keep them in place with adhesive strips.

HEAT EXHAUSTION AND SUNSTROKE are different in symptoms and in treatment. In *heat exhaustion* the patient is dizzy, weak, often has nausea, cramps in the muscles and is only partly conscious. The face is pale, the skin cool and perspiring. His pulse is weak and breathing is shallow.

Loosen the clothing and protect the patient from the sun if possible. Keep him warm and perfectly quiet. If he can be aroused, give aromatic spirits of ammonia $\frac{1}{2}$ teaspoon to $\frac{1}{2}$ glass of water, and drinking water if there is some.

In *SUNSTROKE* the patient is dizzy, irritable and has a headache. His face is flushed, very hot and dry to the touch. He may suddenly fall unconscious. His pulse is strong and he breathes heavily. Shade his head and body if at all possible. Cool him off by putting his wrists in the sea.

EXPOSURE TO COLD. Frost bite is the freezing of single parts of the body, — the nose, ears, cheeks, fingers and toes are usually affected. At first the part is dark red. It then becomes bright red and blisters. In the last stages it is numb, pale, stiff and brittle. By making faces you can tell if there is a stiff spot on your face.

A life suit with warm clothing underneath is the surest protection. Warm the hands by taking the arms out of the sleeves and placing the hands inside the clothing next to the skin on the chest or in the arm pits. Warm the cheeks, ears and nose with the palms of the hands. Warm the feet against the skin of another person. Rig a windbreak if possible, as wind increases the chances of frost bite.

Do not rub the skin with the hands or with snow or ice. Apply cloths wrung out of cold water. If warm water is available slowly raise the temperature of the water in which the cloth is wrung out.

IMMERSION FOOT can be caused by cold alone as well as cold and wet. It can be a very serious condition. Do all that you can to *prevent* it. If possible keep the feet elevated and out of water even if wearing rubber boots. If the socks become wet, remove them and if there are no extra ones wring as dry as possible and put them on again immediately. Keep wiggling the feet and toes.

If the sun is warm, the bare feet may be exposed to dry them but do not let them burn. Otherwise do not uncover them even to rub them.

NEVER RUB SWOLLEN, TENDER OR NUMB FEET.

If there is enough room, take turns lying down flat with feet and legs held high in the air.

Immersion foot is painful at the start, then the foot becomes numb. Later it becomes red and there is difficulty in moving the toes. The leg begins to swell, especially if it cannot be kept raised. After several days dark patches may appear and the skin cracks.

To take care of it in the lifeboat, dust all blisters, sores and broken areas of the skin with sulfanilamide powder. If there is no sulfa, smear with boric acid ointment and cover lightly with clean, dry bandages.

DO NOT STAND WHEN RESCUED. BE CARRIED OFF THE BOAT OR LIFTED IN A BOSUN'S CHAIR.

Warm the feet very gradually. (See p. 59.) If you do not follow these directions you may lose your feet or they may be painful for a long time.

INJURIES

You may never need these facts but it is mighty handy to have them if you do — wherever you may be.

EXAMINE THE INJURED PERSON. Ask him what hurts him. Do not just take care of the wound that you see. Notice if he is pale or faint. He may be hurt inside or be bleeding from some spot that you did not see at first. Handle him gently.

A BROKEN BONE

The two parts of the broken bone must be kept from moving. A splint keeps them in place. If the patient must be moved before a splint is applied he should be dragged by the shirt or coat collar and not carried.

Handle the limb with the utmost gentleness. Fold or cut the splint wire found in the first aid kit so that its length includes the joints above and below the break. Then the broken parts can't move.

For example, if the lower leg is broken the splint should extend below the ankle and above the knee so that neither of these joints can move. Shape the

wire around the leg so that the leg lies in it. Pad the wire with a sweater or any piece of clothing. Bandage the leg and splint together.

If the collar bone is broken, put the arm on that side in a sling. You can't put a splint on a broken collar bone.

If the upper leg is broken, put a splint on the outside of the leg. It should reach from the armpit to the foot. You may have to use an oar for this. Put another splint on the inside reaching from the crotch to the foot.

There may be considerable shock from the break. The patient should be watched for it.

DISLOCATIONS

If there is no one who knows how to put a dislocated shoulder back in place, put the arm in a sling and tie the upper arm to the body with a broad bandage so that it can't move.

SHOCK

Every injured person suffers to some degree from shock. It does not amount to anything for a small injury, but it may be very serious if the person is badly hurt. It may appear some time after the injury. Try to prevent it and be on the watch for it. Great fear or excitement, particularly if the man is ex-

hausted, may bring it on. It should also be looked for whenever much blood has been lost or the man has been exposed to cold for a long time.

When a man is in shock:

1. He feels weak and dizzy. He may be very thirsty and sick to his stomach.
2. He looks pale and his skin is cold and clammy.
3. He breathes very fast or he may be gasping for breath if he has lost a lot of blood.
4. He may be anxious and restless. Sometimes he is abnormally cheerful or he may be completely out.
5. It is hard to find the pulse because it is so weak. It is also very fast.

A person in the water near exploding depth charges may not seem to be injured at first but as long as four hours later, he may cough, have a pain in the chest and belly and show the signs of shock.

TO TREAT AND PREVENT SHOCK

1. Stop the bleeding, if present.
2. Then remove wet clothing, under covers if possible. Wrap in blankets to keep in the body heat. Remember that more blankets are needed under the body than over it.
3. Raise the legs so that they are about a foot above the body and put rolled up blankets or clothes

under the body so that it also is higher than the head unless the head is injured. In this case put the folded blanket or coat under the head and shoulders. The patient should not sit up. Keep him as quiet as possible.

4. Apply heating pads, found in the abandon ship kits, to the belly and groin. Great care should be taken not to burn the skin especially in a person who has fainted. Wrap the pad in a piece of clothing to prevent overheating the skin. Too much heat is just as harmful as cold.

5. Pass aromatic spirits of ammonia under the nose of the patient if he has passed out. Try it on yourself first. If he is conscious give him a teaspoonful in $\frac{1}{2}$ glass of water and repeat every half hour until he feels stronger. If you can get hot drinks give hot water, tea or coffee, one teaspoon at a time, so that he has a total of a cup once every hour.

Never pour liquids into the mouth of a person who has passed out.

6. Give $\frac{1}{2}$ grain morphine for severe pain.

To give morphine: Take off the transparent cover of the morphine syrette. Take hold of the wire loop and push the wire in so that it makes a hole in the inner seal. Pull out the wire and throw it away.

Be careful not to let the fingers or anything else come in contact with the needle.

Hold the loose skin on the forearm, leg, or belly between the fingers, thrust in the needle to half its length, and slowly squeeze the tube from the end. It takes 20 to 30 minutes to get the total effect. Do not repeat in less than two hours.

Pain makes shock worse. An additional dose may be given in three hours if necessary. Do not give morphine in a head injury or to a person who has fainted.

7. Rub the patient's arms and legs briskly toward the body under the covers to increase circulation and help warm him.

8. The man may vomit as he starts to recover. Do not let him get up but raise his head slightly and turn it to one side.

TREATMENT OF WOUNDS

If serious *stop the bleeding, then treat shock, then prevent infection.*

1. Lay the patient flat if possible.
2. Get at the wound by cutting the clothing if absolutely necessary and cut away as little as possible so that the patient won't be cold.
3. If the wound has stopped bleeding do not wash

away the clot unless it is crusted with dirt as it may start bleeding again. Fuel oil will not do any harm.

4. Sprinkle sulfanilamide powder on the wound and surrounding skin, or if that is not available, apply antiseptic. Do not try to remove pieces of clothing, metal or bone from the wound unless they are loose, as the bleeding may start again or increase.

If necessary, wash the wound with sea water. If the wound is covered with grease or oil, use the oil remover, then sea water.

5. Do not touch the wound with your fingers. Take large compresses — without touching the side to be put next to the wound — cover the injury, and hold in place firmly with a bandage.

Do not disturb the dressing unless it becomes painful, then loosen it but do not remove it. If blood soaks through put another large compress on top and hold in place firmly with another bandage. The compresses are made up of many square layers of gauze and are in the first aid kit.

6. Stop bleeding. Usually the compress and bandage do the trick.

(a) If an arm or leg is bleeding, raise it high. Bleeding can often be stopped by putting the hands tightly around the arm or leg.

(b) If the blood is dark red and flowing smoothly, it is from a vein. A large compress over the wound, held firmly in place with the hand, is put on first. Try to get a firm pressure with the hand down to the bone — this will stop almost all bleeding. Then



put on a firm but not tight bandage. If bleeding continues put pressure with the fingers on the nearest pressure point on the side of the wound away from the heart.

(c) If the blood is bright red and flows in spurts, it is from an artery. Raise the leg or arm, and put pressure with the fingers on the nearest pressure point between the heart and the wound (see illustration).

(d) If the bleeding continues and everything else fails, apply a tourniquet about a hand's breadth below the armpit for an arm wound and about a hand's breadth below the groin in the case of a leg wound. Never apply it anywhere else.

Apply the tourniquet over clothing or several layers of bandage. Use any piece of cloth at least two inches wide. Take two turns and tie a square knot.

If this does not stop the bleeding, insert a stick and twist it to tighten the tourniquet, until the bleeding just stops, and no tighter.

LOOSEN EVERY FIFTEEN MINUTES AND DO NOT TIGHTEN AGAIN IF THE BLEEDING HAS STOPPED. Always indicate by tag or mark that a tourniquet is on. Leave it in place in case bleeding starts again, but keep it loose in the meantime.

IT IS RARELY NECESSARY TO USE A TOURNIQUET.

(e) Treat the wound as described under (3) and (4) on pp. 70 and 71.

7. Keep the patient warm.

8. If the pain is very great give *morphine* to stop the pain and help prevent shock. Do not give morphine if you think the patient has cracked his skull or gotten a concussion.

9. If the *CHEST WALL* is injured so that air is going into the chest, put on a large compress immediately, holding it tightly against the chest wall, so that no air can enter. Hold it firmly in place with a wide strip of bandage. Air in the chest may cause the lung to collapse and death may follow.

10. Bleeding from head or face wounds can almost always be stopped with a pad placed firmly over the wound.

11. Never give liquid if there is severe bleeding or a belly wound or if a man coughs blood. It makes the bleeding worse or starts it up afresh.

12. If a wound becomes infected, soak it in hot water for an hour and repeat in six hours if necessary. In a lifeboat use sea water. Or use compresses or clothes soaked in sea water.

13. Each wounded or burned man should be given 8 sulfadiazine tablets at one time. No more should be given.

BURNS

1. Do not clean. Fuel oil will not prevent healing.
2. Do not open blisters.
3. If the burn is large, uncover and care for only one part at a time.
4. If the pain is very severe give morphine and treat for shock. (p. 68.)
5. Sprinkle with sulfanilamide powder. If you do not have it use boric acid ointment. Put on a compress and bandage lightly. Do not remove the bandage, even if it becomes stuck to the burn. Loosen it if it becomes uncomfortable.

ARTIFICIAL RESPIRATION

Use only on patients who have stopped breathing (No one who is breathing must ever be given artificial respiration.)

1. Put patient flat on his belly with his head resting on his folded arm with palm down and the other arm outstretched. Start at once.

Let an assistant loosen the clothing. Put a finger in the mouth and feel for anything that might obstruct breathing such as a plate, tobacco, etc.

2. Straddle the patient's upper leg on the same side toward which his face is turned and kneel halfway between his knee and crotch. If the deck is

slippery cross your feet under the patient's ankle to keep him from slipping.

3. Place the palms of your hands on the small of the patient's back with the thumb against the first finger. The little finger should just touch the lowest rib. The tips of the fingers should be just out of sight.

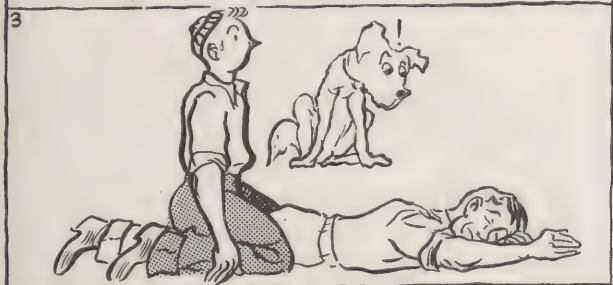
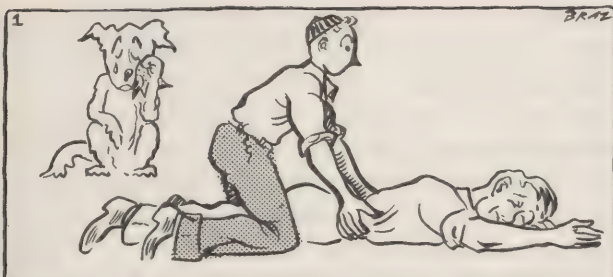
4. Then without bending the arms swing slowly and smoothly forward so that the weight of your body is gradually brought to bear on your patient. As you do this, count one thousand one, one thousand two, one thousand three. At the end your shoulders should be directly above your hands.

DO NOT PUSH YOUR WEIGHT DOWN ON THE PATIENT. The amount of pressure depends on the size of the patient. Use lighter pressure if the patient is small or thin. You may break a rib if you push too hard.

5. Come back immediately to an upright position, removing all pressure so that the lungs may expand and fill with air. Then wait while counting one thousand one, one thousand two, one thousand three. This should take two seconds.

6. Then go forward again to the same count.

7. If the tongue has slipped back have an assistant



grasp it with a clean piece of cloth and pull it gently to its normal position. Wipe out any saliva or mucous that fills the mouth.

8. Keep the patient warm. You can work with your hands under a blanket covering the patient.

9. The patient may start breathing and then stop. Watch him carefully and if this happens start artificial respiration again at once.

10. It may take three or four hours to start the man breathing. If the operator gets too tired, the fresh man should start in without breaking the rhythm.

11. Give the patient no fluids until he comes to completely. Then aromatic spirits of ammonia may be given, — $\frac{1}{2}$ teaspoon to one cup of water.

12. Do not let the patient sit up or stand after he starts breathing.

PSYCHOLOGICAL FIRST AID

A Chinese seaman was alone on a raft for 143 days. He was picked up in good condition mentally and physically. When he ran out of water, it rained. When he ran out of food he caught fish. Throughout he was calm and philosophical. He said that it was obvious that the devil didn't want him or it wouldn't have rained just when he had to have water. Therefore he was convinced that he would be picked up.

He felt that no white man would have had the patience and faith to sit calmly and wait to be rescued. Well, there's an old proverb that says "What one fool can do, another can." You might substitute "What one wise man can do, another can," and the proverb doesn't say anything about race or color having a corner on either fools or wise men.

You never know when you are going to need psychological first aid for yourself or the other fellow. Psychology is a \$64 word for understanding the way people act, and why. Everybody has plenty of chance to watch others, study them, and try to understand them as well as themselves. Many a person who can't read, and wouldn't recognize the word psychology if he heard it, has a good working knowledge of it through observation.

Life in action or in danger from the enemy is different in its effects on people from any other kind of life. The body and mind have to take plenty — more than they are used to and sometimes more than they can stand, for the time being. But the more you know, the better you can manage.

FEAR

Take fear, for instance. Every one of us is afraid in danger — even more while the danger threatens than before it actually arrives. That's normal and natural. There would be something wrong with you if you weren't. But for centuries we've been taught that to show fear was yellow. Even to admit it to oneself made one feel a coward.

The strain of feeling afraid and hiding it can be terrific. The body and mind have to carry a double load. Fortunately that whole attitude is changing fast. The heroes of this war not only feel afraid but say so — even in print. Just about everyone knows that to carry on in spite of fear is the essence of courage. So there is less to hide — therefore less strain and more strength.

The first principle of psychological first aid is to admit, at least to yourself, what you are feeling. This goes for all feelings, not fear alone.

The second principle is to know what to do about it. Well, there's nothing like confidence to fight fear. You can get confidence from a lot of things. For example, if you have been drilled until you can act without thinking you begin to feel better as soon as you get going. Then there is always the knowledge that a lot of other men have been through it and have come out all right. Experience tells you that your chances are good. Remember it.

If you are not afraid of being afraid, you can think about the situation and make decisions about what is best for you to do. This gives you a feeling of control, and that is an improvement. As soon as you begin to think and plan and act you immediately feel better and you really are better.

The reason for this lies in the way that we are built. Feelings are not separate from the body. They are as much a part of it as heat is a part of a burning log. No matter what you feel, the body goes through a corresponding change.

When you are frightened the body gets ready for action without any special orders. As you know, the heart beats faster, more blood is pumped through it, the muscles get tense, more sugar for fuel is sent into the blood, and you breathe faster so that more oxy-

gen will be sent around the body. You may be paralyzed just for the moment or for longer, or you may find yourself doing something about the situation in a hurry. The body is fueled up and ready to go like a race horse at the starting line.

Then if there is nothing you can do, — if you must keep still in a foxhole or back of a bulwark on a ship, — all of this preparation is not used. The desire to fight may be intense but it may be impossible.

It is only natural that under such circumstances the person should be nervous. If this experience is repeated often enough, the nervousness may continue even though the man is never injured. "Convoy fatigue," "war nerves," and similar terms express certain facts about the way the body acts when exposed to great danger. Danger long continued has the same effect. The situation is worse if the man can't fight back, if he is worn out through lack of sleep, insufficient food, lack of confidence in his leaders, unexpected circumstances, or anything else that wears down his confidence.

War nerves are cured by the opposite conditions — sleep, quiet surroundings, good food, and an understanding by the man of his situation to bring back his confidence in himself. These things are equally im-

portant in preventing war nerves — good health and a happy ship and plenty of drill. Getting accustomed to danger is a help. A certain amount of actual experience in facing danger makes it easier to endure the next time. But too much wears you out.

ANGER

As we have said in other places in this book, it is natural for many men to be irritable and to blow their top with slight excuse when they are under strain. A strong desire to fight is stored up when danger threatens. Fear and anger are first cousins.

If you can't fight the enemy, you are likely to want to fight any one handy. There are two ways of handling this. Directly, by fighting it out with gloves, or indirectly, in competitions. Games in harbor and on shipboard when possible can help a lot. Even trying to win at cards gets rid of a lot of tension.

When you see another man looking down in the mouth ask him what ails him. Maybe he's worried about some one at home and with a little persuasion he will talk about it. A trouble shared with some one is no longer so difficult. Or he may have a justifiable gripe about the ship. If it can't be set straight, it's more bearable if it is brought home to him that at least he is doing a job, along with all of the Mer-

chant Marine, that is indispensable.

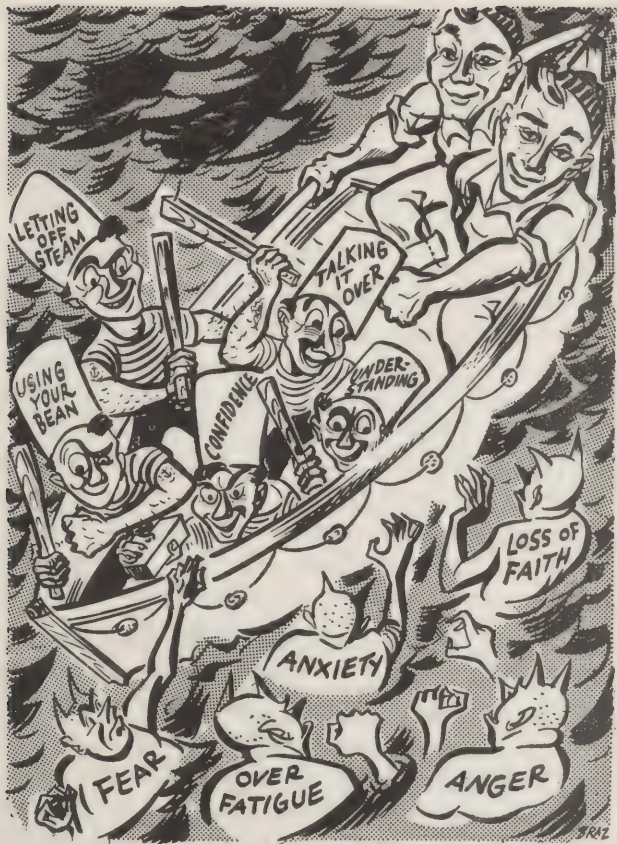
It is possible for a man to turn anger on himself when he isn't able to turn it on the enemy. Instead of cursing the Jap, he will curse the day that he was born. He will kick himself instead of the other fellow. When carried to extremes, it results in suicide. It happens especially in moods of hopelessness when there seems no way out. Look that one in the face.

Realize that you are tempted to do away with yourself not because the situation is hopeless, but because somewhere deep inside of you, you are so full of rage that you want to die. If it hits you, *get going on something active immediately*. Fight the wind and waves if you are in a lifeboat. Start an argument, if nothing better offers.

A man may beef about one thing when actually he is bothered or angry about something quite different, which he hesitates to talk about. We can transfer our feeling from one person to another, often without realizing it. Like the man who is angry with his boss, keeps quiet about it, and fights with his wife.

FATIGUE

Fatigue affects the feelings as well as the body. It will make a man short of temper, dull and blue. He is without interest. Sometimes it's due to lack of sleep.



Sometimes it's a need for vitamins and other food substances, even though you fill up at meal times. Or it can be due to long continued exposure. The answer is to get sleep, rest, and a balanced diet when you can. If you can do something different that interests you, it's amazing how quickly you get over being tired.

On a raft or in a lifeboat these difficulties are usually increased a thousand times. It needs all of the faith in yourself and in Providence that you can muster to see you through. If you believe that the devil doesn't want you, he won't get you. IF YOU BELIEVE THAT YOU CAN BEAT IT YOU HAVE ENORMOUSLY INCREASED YOUR CHANCE OF DOING IT.

It's not blind faith either — it's based on the experience of hundreds of men who have reached safely in these past two years — and sailed again.

PSYCHOLOGICAL CARE OF SURVIVORS

Your ship may pick up survivors and some of them may be nervous and upset. Treat them gently and quietly. They may want some one to stay with them for reassurance — they can't believe that they are safe. They often wake up terrified thinking that they are still on the raft. Loud or sudden noises and thunder

often terrify them. Talk to them quietly.

If a man is confused tell him where he is and how he was picked up. Convince him that he is being taken care of.

If he weeps don't try to stop him. Wait quietly until he is through. If he gets aggressive, let him yell and encourage him to get it out of his system. Don't try to stop him unless it is disturbing to others or exhausting him too much. In that case give him ½ grain phenobarbital and talk reassuringly to him.

Being rough with a person who has been through an ordeal does not help him to forget it or get over it. It makes him angry and increases his nervousness.

The leaders may try to continue a brave front after the rescue. Give them a chance to break down too — it will help them come back to normal more quickly.

GETTING HOME

As the time approaches for landing, eagerness to get on shore is coupled with exhilaration. You just can't wait to get away from the ship. Well, sometimes it's as rosy as one pictures it, but sometimes it's not so easy. It's a different way of life to get used to. The people you meet haven't shared your experiences. Their point of view may seem so different that you feel like an outsider.

You may be tired and irritable and others may not understand it. Perhaps you are restless and aggressive. Because you're not in uniform people don't know that you have been on the war front and may be short with you. (Get your ribbon and wear it.)

These experiences are common. Men have longed to see their families only to find that the noise of the children irritates them. Their friends annoy them.

They are cross, blame themselves, then feel worse.

Give yourself a chance to blow off steam for a day or two and then get yourself some rest. If you don't settle down in a few days, get away. The Merchant Marine Rest Centers have been established for just this purpose.



V. CARE OF SURVIVORS

Survivors should be lifted from the boat or raft if possible. On no account should they be allowed to walk even if they want to. Be very gentle in handling the hands and feet.

Keep the men lying down in bed with legs raised, in a dry and moderately warm, *not hot* place. Never put anything hot on the feet as they may be frozen or suffering from immersion foot. (p. 64.)

FLUIDS

Give the survivors as much water — warm if possible — as they will take, starting with small amounts given frequently. If it is hard to swallow, put a teaspoon of sugar in a glass of water and give a few teaspoonfuls every ten minutes. Increase the amount as soon as possible. Give no alcoholic drink as it will injure the tissues of the stomach which are dried out and inflamed. Use warm tea or coffee for stimulants.

FOOD

Start with liquid foods. On the first day give fresh

milk, condensed or evaporated milk diluted with an equal amount of water, tea or coffee with sugar, and warm soup. Feed about half a cupful slowly every hour.

Start giving vitamin pills at once if they are available.

If the feet, legs, arms, and hands are bloated, beat an egg into the milk or use egg powder.

Don't give solid food until urination is normal. Then thin, well-cooked cereals with milk and sugar added and ice cream are good.

On the second day bread can be added and larger feedings given at one time with longer space between. Give sweetened fruit juice and the juice from canned tomatoes (not seasoned).

On the third day a regular diet may be taken. It should not be greasy but butter may be given. Feed fruit juices and milk between meals.

If the legs and arms are swollen, meat, eggs and cheese are especially important. The swelling may not appear until some days have passed. Keep the feet raised until the swelling goes away.

Don't worry if there is no bowel movement for three or four days, or if he passes water more frequently than usual.

TREATING THE SURVIVORS

Survivors may be nervous and depressed or over-excited and emotional so that they may seem unbalanced. They may be delirious from fever or from drinking sea water. They usually are much better as soon as they have had enough quiet, rest and food.

They may want to talk about their experiences over and over again. Let them get it off their chests. It helps if they know that others understand what they have been through and that the way they are acting is a natural result of it which they will get over. (See p. 83.) Give three grains of pentobarbital if they are sleeping badly and gr. $\frac{1}{2}$ phenobarbital three times a day if they are nervous during the day. These are in the ship's medicine chest.

Other conditions may need attention. Examine each survivor carefully. Look for:

1. His general condition — shock, the effects of thirst, hunger and exposure.
2. Injuries.
3. Burns.
4. Frostbite.
5. Swellings.
6. Numb or paralyzed arms, legs, fingers or toes.
7. Unusual pain when touched.

See First Aid (pp. 62-74.) Read the directions in the Ship's Medicine Chest.

If the case is beyond you, ask for help by radio. It may be possible for a doctor to be flown from a hospital to the ship. Otherwise get advice by radio. Describe the condition clearly in some such way as the following: "Man, age 48, in lifeboat two weeks, on ship two days, emaciated, very weak, temperature 103° for two days or longer, cough, pain in chest, second degree burn over most of one leg, infected for two weeks, treated last two days with sulfanilamide powder."*

OIL

If the survivors are coated with oil, wash them gently with castor oil, mineral oil, lard or clean diesel oil. Then use soap and water. If the patient is very ill and washing increases the pain leave the oil on until he gets to a hospital.

EYE INFLAMMATION

Add 1/2 teaspoon baking soda to a glass of water and wash the eyes every three or four hours with this solution using an eye dropper or an eye cup. Then

* Do not give any sulfa drug until the survivor has had enough water to overcome his thirst. This may take two or three days if the thirst is extreme.

put in one drop of clean mineral oil. Put a wet cloth over the eyes for ten minutes every hour. Protect the eyes from light.

Ears need to be washed out with lukewarm soapy water if there is oil in them. It may cause earache.

SORES

Clean away the dirt and crusts carefully except those on the leg and foot if he has immersion foot. Do not open blisters. Dust lightly with sulfanilamide powder.

IMMERSION FOOT

Be very careful in handling the limbs as the tissue is very delicate and may easily be permanently damaged. They will be numb so there will be no pain at the start. To treat them:

1. Elevate the feet and legs above the level of the body and support the knees, putting the foot on dry cotton wool. Don't bandage or use dressings.

2. Keep the feet cool. This is most important as it relieves the pain and helps the healing. Warmth makes them hurt worse. Cool air is the most effective way of controlling the pain. An electric fan blowing cool air on the foot gives much relief. Use light cloths wrung out of cold water and changed every fifteen minutes if you do not have a fan. If an ice

bag is used it should be light in weight. Put a towel under it.

3. Dust sulfanilamide powder on any sores.

4. Warm the rest of the body gradually. Wrap in blankets. The arms may be placed in warm water.

5. As long as there is any swelling, pain, or paralysis the patient should not be allowed to stand and the treatment should be continued. It may take several weeks or longer before the feet are healed.



VI. CASTAWAYS

If you land in the tropics you can probably get food and water without much difficulty.

WATER

Dig a hole at low tide just below high water mark. The water which runs in may be salty and brownish in color, but it can be used.

If there is a salt marsh or pond beyond the beach, dig near the foot of the slope which runs to it. You may find fresh water from three to five feet down. Go no deeper because lower down it may be salty.

In jungles, good water may be found at the base of the leaves of air plants growing in the trees. Strain out bugs and wigglers.

Good drinking fluid will often flow from the cut stem of bamboo, palms, and the larger rattan vines. Cut the stem off and catch the water as it drips.

Running water is usually safe if there are no people living near it.

Standing fresh water anywhere in the tropics is

dangerous. Boil it, if you can, before drinking. You can boil water in a section of bamboo before the fire burns through. Or heat stones in the fire, pick them up with branches bent like tongs, and throw them in the water container. Begin with a little water, then add more water and hot stones.

FOOD

TURTLES come ashore, mostly at night, to lay their eggs. Find them by following the trail the turtle makes across the sand to where the eggs are buried. Eat the eggs cooked or raw.

All of the turtle can be eaten except the shell, stomach and kidneys. The liver should be eaten and the blood drunk as soon as the turtle is killed. While cutting off the head, the jaws and claws can do damage. Catch turtles by the shell near a hind leg and turn them on their backs.

TROPICAL FRUITS are almost all good to eat. But eat nothing that has a bitter taste, unless you are sure of what it is and know that it is safe. Avoid all plants with a milky sap. Anything that you see monkeys eat is all right. If you think that you have been poisoned, drink salt water and stick your finger down your throat to make yourself vomit.

Rattans are long, slender vines with sharp curved thorns. At the top of many palms trees and rattans is a large tender bud or cabbage. Cut it out and eat it raw or cooked. Bamboo sprouts grow up to a foot high and can be eaten raw or boiled. So can young leaf-shoots of bamboo, and the young curled-over shoots of ferns.

Coconuts contain a delicious and nutritious fluid and good white meat. Strip off the husk and break the nut.

Papaya grows in clusters like coconuts and can be eaten raw or cooked.

Breadfruit is oval, about six inches across, with a warty surface. To roast it, put it in a hole in the ground, cover it with leaves, lay hot stones around it, and cover the hole with dirt.

Wild yams and sweet potatoes are common in the tropics and can be dug up and cooked. The vine has a leaf shaped like a maple and a flower shaped like a morning glory.

The durian, a large fruit with great spines, smells horrible but tastes like custard. Eat it raw.

FRESH WATER FISH of any kind, fresh water snails, shells, crabs, shrimps, and crawfish are all unsafe to eat unless thoroughly cooked. Drop them in





OK
-AND
ANYTHING
HE EATS
IS OKAY,
TOO

MENU

BREADFRUIT
WILD YAMS
FILET OF FERN
PAPAYA
BAMBOO SPROUTS
COCONUT
COCKTAIL
DURIAN CUSTARD

ME
TOO

OK

OK

OK

OK

OK

BRAT

boiling water or roast them. They often hang on branches that dip in the water, and can be lifted out. Eat the shrimp meat but not the shells.

Only two kinds of shell fish are dangerous. They are found in the Indian Ocean and in tropical parts of the Pacific. Each has a shell that is in a single piece and has poison in the teeth. One is shaped like a sharp spindle. The other is thicker, rounder, open the length of the shell, and shaped like a short flat cone at one end.

Fish are found in pools on reefs, in shallow water, or among rocks at high or low tide. Use your harpoon or block the opening of a pool at high tide so the fish cannot get out. Poisonous puffers sometimes go into fresh water. The flesh of other fish in fresh water is never poisonous. Cook them like breadfruit.

In parts of New Guinea there are great spiders whose webs are useful. Make a flat net by bending a branch and passing it back and forth through a number of the webs. Then bait it with a bug and set it where small fish can see it. They will get tangled in the web.

ANIMALS, AND INSECTS. All animals are safe to eat, — monkeys, bats, lizards, land turtles, frogs, and even snakes, including poisonous snakes, if they

have not bitten themselves. They taste like the white meat of chicken.

ALL BIRDS are good to eat, cooked or raw. Their blood and livers are edible.

Birds will sometimes light on the boat or on your back or head. Catch every bird you can. Save the feathers. Use them to make fishing jigs and stuff them inside your shirt to keep you warm.

Birds follow schools of fish thus showing you where the fish are. When feeding on a school, birds sometimes get so excited that you can get right up to them and harpoon them.

Large birds will often take a bait of fish on a hook trolled or dragged on top of the water. If nearby, they will often come after chum or a piece of fish tossed into the air.

NATIVES

Nearly all native peoples are friendly to Americans. Show them that you are friendly too. Except along the coast and in the northern mountains of New Guinea, it is safe to go to them for help.

MOSQUITOES

Protect yourself from mosquitoes as well as you can, especially in inhabited islands. They carry diseases and they infect you with their bite.

VII. ON RETURNING HOME

Use your allowable shore time for getting into the best possible shape for your next trip. In peace time that was not so important. Now it is all important. If you are sick, treatment is provided for you at Marine Hospitals. There are out-patient clinics in all of the main seaports.

Rest and convalescent care is given to all officers and men at the Rest Centers established by the War Shipping Administration and the United Seamen's Service. The location of hospitals, clinics and Rest Centers is given in "Shore Convoy."

If you have not been immunized against contagious diseases do it on your next trip home. Read over the suggestions for taking care of yourself and carry them out.

For further information or to offer ideas suggested by the book write to

MEDICAL DIVISION, W. S. A.— U. S. S.
107 Washington Street
New York 6, N. Y.



PORT MEDICAL OFFICES

War Shipping Administration

and

United Seamen's Service

Each port has a consultation service which gives medical advice, help with special problems, and referral to Rest Centers.

ALL SEAMEN ARE WELCOME

Baltimore — 1420 N. Charles Street

Boston — 408 Atlantic Avenue

Houston — Cotton Exchange Building

Los Angeles — 119 West Fourth Street

Mobile — 607 Government Street

New Orleans — 600 Canal Street

New York — 107 Washington Street

Norfolk — 127 Bank Street

Philadelphia — Customs House, 225 Chestnut St.
San Francisco — 461 Market Street
San Pedro — 366 West 7th Street
Seattle — 1010 Second Avenue

These facilities are maintained in addition to those of the U. S. Public Health Service.

Information about these medical services may also be obtained at the offices of the Recruitment and Manning Organization and United Seamen's clubs and hotels. Or write to Medical Director, R. M. O.—U. S. S., 107 Washington Street, New York 6, N. Y.

REST CENTERS

Rest, treatment and convalescent care are given to all seamen between voyages. Allied seamen are eligible by special arrangement. Make application at a port medical office. The Rest Centers are located at:

Bay Ridge, Maryland

Gladstone, New Jersey

Millbrae, San Mateo County, California

Oyster Bay, Long Island, New York

Pacific Palisades; California

For information concerning *PHYSICAL EXAMINATION and IMMUNIZATION PROGRAM* see the Port Medical Representative of the War Shipping Administration. He is the officer in charge of the U. S. Public Health Service Hospital or Relief Station.

For further information in regard to this program write to

MEDICAL DIRECTOR,
War Shipping Administration,
Commerce Building,
Washington, D. C.

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AS LONG AS THERE
ARE SHIPS TO SAIL,
THERE WILL BE MEN
TO SAIL THEM.

Remember, Brother!
-My Fact May Save Your Life-

